

5.9 WASTEWATER TREATMENT, EXPORT, AND DISPOSAL

The Porter-Cologne Act (§ 13950-13952) includes specific language regarding domestic wastewater disposal in the Lake Tahoe Basin. It requires the export of all domestic wastewater from the California portion of the Lake Tahoe Basin; an Executive Order of the Governor of Nevada requires export on the Nevada side. The Tahoe Regional Planning Agency (1987, Ordinance Chapter 81) also prohibits the discharge of domestic, municipal, or industrial wastewater within its jurisdiction, with the types of exceptions noted below.

Under the Porter-Cologne Act, the Regional Board allows exceptions to the mandate for export for a small number of summer homes in remote areas of the Lake Tahoe Basin where sewerage would be environmentally damaging. Toilet wastes must be disposed to holding tanks, or incinerator toilets; holding tank wastes or ashes must be exported from the Lake Tahoe Basin (see the discussion of septage disposal in Chapter 4). Disposal of greywater (sink and shower wastes only) to leachfields may be allowed. Food wastes must be exported or incinerated. Garbage grinders, washing machines, dishwashers, and phosphate-based detergents are not allowed. Proper long-term maintenance of exempted facilities (both holding tanks and greywater systems) is very important. Regional Board staff should continue surveillance of these exempted facilities, and their exemptions should be revoked if the Regional Board cannot continue to find that they will not individually or collectively, directly or indirectly, adversely affect the quality of the waters of Lake Tahoe. The Forest Service periodically reviews its permits for summer home tracts. Regional Board staff should continue to review and comment on proposals for permit extensions, to ensure that wastewater issues are adequately addressed. The Regional Board shall make sure that the conditions of exemptions are complied with before extending the exemptions for septic system discharges. The Regional Board will also reconsider the exemptions in the light of technical advances permitting installation of low pressure sewers in environmentally sensitive areas.

Further studies should be done to determine the extent of compliance with conditions for septic system variances in the Lake Tahoe Basin. TRPA (1987) recommends that no further development at Echo Lakes be allowed until a nitrogen study is performed to document any problems associated with septic system use.

The 208 Plan allows the use of wastewater holding tanks for temporary land uses. TRPA's (1987) Ordinance Chapter 81 indicates that such temporary uses include, but are not limited to, sporting events, community events, and construction. The ordinance also allows holding tanks as a permanent measure associated with remote public or private recreation sites, including, but not limited to, trailheads, undeveloped walk-in campgrounds, and summer home tracts where connection to a sewer system is not feasible or would create excessive adverse environmental impacts.

Proper disposal of domestic wastewater from holding tanks and chemical toilets in boats and recreational vehicles is an issue of concern in the Lake Tahoe Basin. See the discussions of control measures for campgrounds and day use areas, and for impacts of boating recreation in the section of this Chapter on recreational impacts, below.

Occasionally, existing structures in more urbanized areas of the Lake Tahoe Basin are found not to be connected to a sewer system. Wastewater collection and treatment agencies should continue to review records and use appropriate field methods to survey for unconnected wastewater discharges within their jurisdictions, and should inform Regional Board staff when such discharges are found. Where necessary, the Regional Board may use enforcement action to prevent discharges from unconnected structures. The Tahoe Regional Planning Agency requires all projects involving a new structure, or reconstruction or expansion of an existing structure, which is designed or intended for human occupancy, and which generates wastewater, to be served by facilities for the treatment and export of wastewater from the Lake Tahoe Basin. To be considered served, a service connection shall be required to transport wastewater from the parcel to a treatment plant (TRPA 1987, Ordinance Chapter 27).

The Porter-Cologne Act (§ 13952) allows the Regional Board to consider approval of pilot reclamation projects for the use of reclaimed

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domestic wastewater for beneficial purposes within the Lake Tahoe Basin, provided that such projects will not individually or collectively, directly or indirectly, adversely affect the quality of the waters of Lake Tahoe. The Regional Board shall place conditions on any approved project to include specification of maximum project size. The Regional Board may suspend or terminate an approved project for cause at any time. The deadline for submittal of technical data to support proposed in-Basin reclamation projects was January 1, 1984; the Regional Board has not yet approved any proposals for such projects.

In order to prevent raw sewage overflows, all sewerage agencies within the Lake Tahoe Basin are required to have preventative maintenance and spill response programs; enforcement actions may be taken if spills occur. Enforcement orders and grant conditions will require measures such as installation of monitoring equipment and any necessary reconstruction or relocation of sewerlines.

The Regional Board should continue to incorporate requirements for preventative maintenance and spill response programs into waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permits for all wastewater treatment agencies in the California portion of the Lake Tahoe Basin. These could include requirements for the installation of monitoring equipment, or for the reconstruction or relocation of defective sewerlines. If a sewerline has a series of overflows due to design deficiencies, it should be reconstructed. Bolted down, sealed manhole covers should be added to sewerlines that parallel the Lake Tahoe shoreline or are located in SEZs to prevent spills from exiting via loose manhole covers. In other areas, sewerlines in or adjacent to stream channels should be relocated to high ground and fitted with sealed manhole covers. The 208 Plan also recommends that sewerlines be relocated out of SEZs where feasible, and identifies capital improvement needs for prevention of spills and exfiltration.

Grants, NPDES permits, and waste discharge requirements for wastewater collection and treatment facilities serving the Lake Tahoe Basin should be conditioned to prohibit the sewerage agencies from providing any connection serving new development which is not in accordance with this Basin Plan. This

includes development which is not in compliance with the waste discharge prohibitions discussed in the "Development Restrictions" section of this Chapter, related to land capability, SEZs, new subdivisions, and offset of past erosion/stormwater problems. State and federal buyout programs for sensitive lots include payment of wastewater treatment plant assessments for lots which cannot be built upon without violation of these prohibitions. The Regional Board shall require that the necessary information be submitted in reports of waste discharge to determine whether applications are consistent with the development restrictions.

The existence of infiltration/inflow problems in Tahoe Basin sewer systems raised the possibility that exfiltration of nutrients from sewer lines to ground water might be a problem. A joint sewer district study of sewerline exfiltration was carried out in the early 1980s in response to the recommendations of the *Lake Tahoe Basin Water Quality Plan*. Although the results of this study did not indicate the presence of significant exfiltration problems, a later study within the jurisdiction of the South Tahoe Public Utility District (Loeb 1987) showed high levels of nitrogen in ground water beneath urbanized areas. Loeb did not conclusively identify the sources of this nitrogen, but his report included recommendations regarding control of exfiltration and fertilizer use, restrictions on watershed disturbance, and monitoring of lake, stream and ground water quality.

Due to aging infrastructure, the likelihood of exfiltration problems in the Tahoe Basin sewer systems may have increased since the early 1980s. Further study of **all** potential sources of nitrogen in Tahoe Basin ground water should be encouraged as part of the ongoing interagency monitoring program. Waste discharge requirements could be used to require correction of sewer exfiltration problems if such problems are shown to be significant in the future. Proposals for study and correction of exfiltration problems could be eligible for grant funding.

Waste discharge requirements for Tahoe Basin sewerage agencies should include a requirement that these agencies submit annual reports providing information needed to update estimates of available capacity, including information on flows, connections during the past year, and remaining unused

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treatment plant capacity. The 208 Plan allows expansion of wastewater treatment plants to meet the needs of new growth allowed by TRPA, but requires wastewater utilities to notify TRPA once the plant has reached 85% of its design capacity, so that orderly planning may be done for expansion. Future growth in the Lake Tahoe Basin is limited by TRPA's Regional Plan (TRPA 1987) to levels projected at about 27% over the 1987 level of development.

The three sewerage agencies on the California side of the Lake Tahoe Basin also function as water purveyors. The State Board has directed that waste discharge requirements for these agencies should include conditions designed to prevent water use in the basin beyond the limits of the California-Nevada Interstate Water Compact (portions of this Compact which deal with the Lake Tahoe Basin were ratified by Congress in 1990 as PL 101-618). See the discussion of water rights and water use later in this Chapter for additional information on the Compact limits.

The South Tahoe Public Utility District (STPUD) provides wastewater collection and treatment for the southern part of the Tahoe Basin in California, and exports treated effluent to Alpine County, where it is stored and used for pasture irrigation. The North Tahoe Public Utility District (NTPUD) and Tahoe City Public Utility District (TCPUD) operate collection systems and export sewage for treatment and disposal by the regional Tahoe-Truckee Sanitation Agency (TTSA), located in Truckee in Nevada County. Chapter 4 of this Basin Plan contains additional information on the STPUD and TTSA facilities, including their operations outside of the Lake Tahoe Basin. The following is a summary of important issues related to these facilities and to the Tahoe Basin implementation program.

South Tahoe Public Utility District

The South Tahoe Public Utility District (STPUD) provides collection and treatment for municipal wastewater from most of the El Dorado County portion of the Lake Tahoe Basin. Wastewater is given advanced secondary treatment and pumped over Luther Pass to the East Fork Carson River in Alpine County, where it is stored in Harvey Place Reservoir and used for pasture irrigation. (An amendment to the Porter-Cologne Act [§ 13952] allowed STPUD to submit a conceptual plan for the reuse of very highly

treated wastewater within the Tahoe Basin, but the costs of the necessary treatment will probably prohibit the implementation of such a plan.) STPUD's approved capacity is 7.7 mgd. Issues associated with the STPUD include treatment capacity and continuing problems with spills within the Lake Tahoe Basin.

STPUD's capacity in 1993 was inadequate to serve projected buildout under the 208 Plan (TRPA 1988). The district's current maximum capacity in sewer units was defined by a 1989 agreement with the League to Save Lake Tahoe and the California Attorney General. In 1993, STPUD began evaluation of alternative means to increase the number of allowable connections without expanding the treatment plant, including abandonment of the sewer unit concept. Flows to STPUD can be affected by wet weather infiltration/inflow to sewer lines, changes in occupancy, increases in day use, and the degree of water conservation. Unless and until the treatment plant can be reliably expanded, or until agreement is reached that the plant can serve significant additional development within its approved capacity, treatment capacity for large scale new projects such as hotels will probably need to be obtained through retirement of sewer units associated with existing development.

Problems associated with STPUD's facilities within the Lake Tahoe Basin have included:

- Raw sewage overflows from blockages in gravity sewerlines, pump station malfunctions, etc.
- Spills of several million gallons of diluted, partially treated wastewater to Lake Tahoe as a result of storm events.
- Adverse impacts of sewage spills and maintenance activities on streams and wetlands tributary to Lake Tahoe. (Portions of STPUD's collection and export systems are located within SEZs.)

Environmental review of the STPUD facilities plan which led to conversion from tertiary to advanced secondary treatment, and the storage of effluent in Harvey Place rather than Indian Creek Reservoir, led to the conclusion that improvements at STPUD could facilitate growth in the Lake Tahoe Basin (USEPA

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1981). This growth was expected to have a variety of impacts including non-point source impacts on water quality. Further expansions of STPUD's treatment capacity would be expected to have similar impacts.

As mitigation for the growth-related impacts associated with its 1980s facilities upgrading, STPUD agreed to implement a detailed mitigation program which incorporated many of the measures later included in TRPA's Regional Plan and 208 Plan. The mitigation program was also made a condition of state and federal grants.

Infiltration and inflow (I/I) problems in STPUD facilities and in any entities which connect to those facilities in the future should be corrected.

STPUD's export system should continue to be upgraded to prevent further spills to Lake Tahoe and its tributaries. However, because of the environmental sensitivity of affected waters both inside and outside of the Lake Tahoe Basin, the Regional Board will review plans for improvement of the system very carefully.

Control measures for existing or potential water quality problems associated with STPUD's current and former storage and disposal operations in Alpine County (including the use of reclaimed water for irrigation by private ranchers) are discussed in Chapter 4 of this Basin Plan.

Tahoe-Truckee Sanitation Agency

The regional wastewater treatment facilities of the Tahoe-Truckee Sanitation Agency (TTSA), located in Truckee in Nevada County, provide tertiary treatment for wastewater collected by the North Tahoe and Tahoe City Public Utility Districts in the Lake Tahoe Basin. (TTSA also serves other member districts outside of the Lake Tahoe Basin.) Wastewater is carried from member districts by an interceptor pipeline which generally parallels the Truckee River. TTSA's member districts formerly operated separate wastewater treatment plants but now operate and maintain collection facilities. Discharge prohibitions for the Truckee River Hydrologic Unit (HU), cited in the prohibition section of this Chapter, include prohibitions affecting further operation of these treatment plants, and discharges from septic tank/leachfield systems from current and future development in the portion of the HU within TRPA's jurisdiction. Additional information on TTSA's

treatment and disposal operations in relation to water quality in the Truckee River HU is provided in Chapter 4 of this Basin Plan. A stipulated judgment which settled litigation between TTSA and the League to Save Lake Tahoe limits TTSA connections in the Lake Tahoe Basin to 3500. In 1991, TTSA staff estimated that the plant had available capacity for the next 5-10 years.

Infiltration and inflow (I/I) of stormwater into collection systems is an important consideration in evaluating the available capacity of TTSA. Although TTSA's member districts have made considerable efforts to reduce I/I, it continues to be a substantial problem during normal to wet water years. TTSA's consultants showed that approximately 21% of the total flow to the treatment plant in 1978, and approximately 44% of the flow during the maximum flow month (March), was from I/I.

Effective control of I/I is an ongoing process, and benefits gained through extensive correction measures can be reversed within a few years if control efforts are not maintained. Substantial I/I reduction measures must be implemented as TTSA facilities approach rated capacity to allow additional connections. If I/I control efforts are then substantially reduced, TTSA facilities will eventually be overloaded as I/I increases. This could result in violations of waste discharge requirements and/or long-term upsets of treatment facilities processes. The Regional Board must fully utilize its regulatory authority to assure that TTSA member entities are committed to an ongoing program of maintaining acceptable levels of I/I once they are achieved. Acceptable I/I control programs would include annual surveys to locate significant I/I sources, and complete implementation of proper corrective measures on an annual basis.